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**DEPARTMENT:** Computer Engineering

**COURSE TITLE:** Engineering Drawing

**COURSE CODE:** ENG 232

**THEORY ANSWERS**

1. You represent a sectioned surface using section lines which are inclined at 450

2. General rules are stated below:

* Dimensions should NOT be duplicated, or the same information be given in two different ways.
* No unnecessary dimensions should be used - only those needed to produce or inspect the part.
* Dimensions should be placed at finished surfaces or important center lines.
* Dimensions should be placed so that it is not necessary for the observer to calculate, scale, or assume any measurement.
* Dimensions should be attached to the view that best shows the shape of the feature to be dimensioned.
* Avoid dimensioning to hidden lines wherever possible
* Overall dimensions should be placed the greatest distance away from the object so that intermediate dimension can nest closer to the object to avoid crossing extension lines.
* A dimension should be attached to only one view (i.e., extension lines should not connect two views).
* Never cross dimension lines.
* Never cross extension lines.
* Always dimension the actual size of the object - not the scaled size.
* Holes should be located by their center lines.

​3a. Half-Sections. A half-section is a view of an object showing one-half of the view in section, as in the drawing below. The diagonal lines on the section drawing are used to indicate the area that has been theoretically cut. These lines are called section lining or cross-hatching.

3b) if the imaginary cutting plane passes through the entire object, splitting the drawn object in two with the interior of the object revealed, this is called a "full section." A full section is the most widely-used sectional view.

4. Notes or dimensions that pertain to surfaces or parts are lead to that surface or part by leader lines.    Leader lines are thin, solid lines that terminate in an arrowhead or dot. Use arrowheads when leader lines terminate at the outline of an object. Use dots when leader lines terminate within the outline of the object or on the surface of the object.

5a. In terms of centimetres, the 5:1 scale is an enlarging scale which makes 5cm to represent 1cm of the actual object

5b. Following the terms of centimetres, the 1:10 scale is a reducing scale which makes 1cm to represent 10cm of the actual object

6a) Phi (Φ)

b) R

c)

d) SR

7. Elements Considered:

 a) The Front View

 b) The End View

 c) The Plan

An orthographic drawing is a clear, detailed way to represent the image of an object. It may be used by engineers, designers, architects, and technical artists to help a manufacturer understand the specifics of a product that needs to be created.

8. It is called orthographic projection when the principal planes or axes of an object in an orthographic projection are not parallel with the projection plane, but are rather tilted to reveal multiple sides of the object, the projection is called an orthographic projection

9a) First angle projection:First angle projection is a method of creating a 2D drawing of a 3D object. It is mainly used in Europe and Asia and has not been officially used in Australia for many years. To get the first angle projection, the object is placed in the first quadrant meaning it's placed between the plane of projection and the observer.

b) Third angle projection:Third Angle projection is a method of orthographic projection which is a technique in portraying a 3D design using a series of 2D views. For the third angle projection, the object is placed below and behind the viewing planes meaning the plane of projection is between the observer and the object.



**OBJECTIVE ANSWERS**

 1. Reference Plane

 2. True

 3. Directly

 4. 1200

 5. 600

6. Rivet

7. Crowning

8. 450

9. Circle

10. An ellipse

11. Cylinder

12. Cone

13. Pivot bearing

14. 550

15. Vertical Plane